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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	09/893,337
Filing Date	June 27, 2001
First Named Inventor	Doll et al.
Group Art Unit	3641
Examiner Name	E. Miller
Attorney Docket Number	2507-5834US (21856-US)

ENCLOSURES *(check all that apply)*

- [x] Postcard receipt acknowledgment (attached to the front of this transmittal)
- [x] Duplicate copy of this transmittal sheet in the event that additional filing fees are required under 37 C.F.R. § 1.16
- [ ] Preliminary Amendment
- [ ] Response to Restriction Requirement/Election of Species Requirement dated
- [ ] Amendment in response to office action dated
- [ ] Amendment under 37 C.F.R. § 1.116 in response to final office action dated
- [ ] Additional claims fee - Check No. in the amount of $
- [ ] Letter to Chief Draftsman and copy of FIGS. with changes made in red
- [ ] Transmittal of Formal Drawings
- [ ] Formal Drawings (sheets)
- [ ] Information Disclosure Statement, PTO/SB/08A (08-00); [ ] copy of cited references
- [ ] Supplemental Information Disclosure Statement; PTO/SB/08A (08-00); copy of cited references and Check No. in the amount of $180.00
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- [ ] Assignment Papers *(for an Application)*
- [ ] Terminal Disclaimer
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  Appeal Brief with Appendix A and Check No. 7450 in the amount of $500.00

Remarks

The Commissioner is authorized to charge any additional fees required but not submitted with any document or request requiring fee payment under 37 C.F.R. §§ 1.16 and 1.17 to Deposit Account 20-1469 during pendency of this application.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm *or* Individual name	Katherine A. Hamer	Registration No. 47,628
Signature	Katherine A. Hamer	
Date	February 24, 2005	

CERTIFICATE OF MAILING

Express Mail Label Number: EL994826463US

Date of Deposit: February 24, 2005

Person Making Deposit: Steve Wong

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Doll et al.

Serial No.: 09/893,337

Filed: June 27, 2001

For: REDUCED SENSITIVITY, MELT-POURABLE TNT REPLACEMENTS

Confirmation No.: 1137

Examiner: E. Miller

Group Art Unit: 3641

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APPEAL BRIEF

Mail Stop Appeal Brief – Patent
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sirs:

This brief is submitted in the format required under 37 C.F.R. § 41.37(c). A check in the amount of $500.00 for the fee under 37 C.F.R. § 41.20(b)(2) for filing a brief in support of an appeal is enclosed. A petition for a five-month extension of time and the necessary fee is also enclosed.

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1) REAL PARTY IN INTEREST

The real party in interest in the present pending appeal is Alliant Techsystems Inc., Assignee of the pending application as recorded with the United States Patent and Trademark Office ("Office") on December 17, 2001, at Reel 012390, Frame 0760.

2) RELATED APPEALS AND INTERFERENCES

The Appellants, the Appellants' representative, and the Assignee are not aware of any pending appeal or interference that would relate to, directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

3) STATUS OF THE CLAIMS

Claims 1-32 and 34-44 are pending in the application.

Claim 33 is canceled.

Claims 1-32 and 34-44 stand rejected.

Claims 1-32 and 34-44 are the subject of the pending appeal.

4) STATUS OF AMENDMENTS

A Final Office Action ("Final Office Action") was mailed on November 6, 2003, in which claims 1-32 and 34-44 were rejected under 35 U.S.C. § 112 and 35 U.S.C. § 103(a). The pending claims were also provisionally rejected under the judicially created doctrine of obviousness-type double patenting.

In response to the Final Office Action, Appellants filed an Amendment Under 37 C.F.R.

§ 1.116 ("Amendment After Final") on December 23, 2003, in which amendments were proposed to claims 1, 15, and 40. The Amendment After Final also included arguments against the indefiniteness and obviousness rejections and arguments against the Examiner's indication of finality. Appellants also filed Terminal Disclaimers to obviate the obviousness-type double patenting rejections.

On February 4, 2004, an Advisory Action ("Advisory Action") was mailed in which the indefiniteness and obviousness rejections of claims 1-32 and 34-44 were maintained. The Advisory Action also stated that the amendments proposed in the Amendment After Final would not be entered because they allegedly raised new issues that required further search and consideration and raised the issue of new matter. Advisory Action, p. 2. Specifically, the Examiner stated that deleting the phrase "remeltable to a pourable state" from the claims would require reexamination and was new matter. However, Appellants note that as-filed claims 1 and 15 did not recite this phrase and, therefore, the Examiner's initial search should have included this subject matter. Furthermore, deletion of this phrase does not constitute new matter since the as-filed claims did not recite this phrase. As such, Appellants believe the Examiner improperly refused entry of the proposed amendments.

Appellants filed a Request for Continued Examination on February 6, 2004, in which claims 1, 15, and 40 were amended (as proposed in the Amendment After Final). In addition, arguments were presented against the outstanding rejections and against the Examiner's previous indication of finality.

The rejections of claims 1-32 and 34-44 under 35 U.S.C. § 112, second paragraph and 35 U.S.C. § 103(a) were maintained in an Office Action mailed on May 21, 2004 ("Office Action of

May 21, 2004").

Appellants filed a Notice of Appeal on August 6, 2004.

5) SUMMARY OF THE CLAIMED SUBJECT MATTER

The presently claimed invention is directed to melt-pourable explosive compositions that comprise 30 weight percent ("wt%") to 70 wt% of one or more organic binders selected from the group consisting of mononitro aromatics and dinitro aromatics. See, the as-filed specification at p. 7, lines 9-12. The organic binders collectively exhibit a total energy of detonation lower than trinitrotoluene and collectively have a total melting point in a range of 80°C to 115°C. *Id.* at p. 3, line 26 through p. 4, line 3. The organic binder may be a mononitro-substituted or a dinitro-substituted phenyl alkyl ether, such as 2,4-dinitroanisole, 2,4-dinitrophenetole, or 4-methoxy-2-nitrophenol. *Id.* at p. 7, line 14 through p. 10, line 12. The organic binder may be a nitrotoluene, dinitrotoluene, dinitronaphthalene, nitrophenol, dinitrophenol, mononitroaniline, or dinitroaniline. *Id.*

The melt-pourable explosive composition also includes 30 wt% to 70 wt% of one or more oxidizers, such as an organic oxidizer, an inorganic oxidizer, or mixtures thereof. *Id.* at p. 3, lines 20-26 and p. 13, lines 16- 25. For instance, the oxidizer may be an inorganic oxidizer. *Id.* at p. 4, lines 4-8. The inorganic oxidizer may be a perchlorate or nitrate, such as ammonium perchlorate, sodium perchlorate, potassium perchlorate, ammonium nitrate, sodium nitrate, strontium nitrate, or potassium nitrate. *Id.* at p. 13, lines 16-22. The inorganic oxidizer may have an average particle size of from 3 microns to 60 microns, such as from 5 microns to 20 microns. *Id.* at p. 14, lines 3-4.

The melt-pourable explosive composition is pourable at a temperature in a range of 80°C to 115°C. *Id.* at p. 4, lines 2-3. At least 95 weight percent of the melt-pourable explosive composition comprises a combination of one or more organic binders and one or more oxidizers. *Id.* at p. 4, lines 14-17. For instance, at least 99 wt% of the melt-pourable explosive composition may comprise a combination of the one or more organic binders and the one or more oxidizers. *Id.*

The melt-pourable explosive composition may include a processing aid, such as an N-alkyl-nitroaniline processing aid or an N-aryl-nitroaniline processing aid. *Id.* at p. 11, line 6 through p. 12, line 20. The processing aid may be present at not more than 1 wt% of the melt-pourable explosive composition. *Id.* at p. 13, lines 7-15. The melt-pourable explosive composition may undergo an onset of thermal decomposition at a temperature that is at least 55.5°C higher than the temperature at which the melt-pourable explosive composition becomes pourable. *Id.* at p. 6, lines 10-14. The melt-pourable explosive composition may exhibit a card gap value of less than 121, such as a card gap value of less than 101. *Id.* at p. 16, lines 21-24. The melt-pourable explosive composition may exhibit a dent depth in a range of 0.754 cm to 0.922 cm and may have a total energy of detonation of 7.1 kJ/cc to 8.7 kJ/cc. *Id.* at p. 17, lines 6-9 and 22-24.

6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A.1. Claims 1-32 and 34-44 stand rejected under 35 U.S.C. § 112, second paragraph.

A.2. Claims 1-32 and 34-44 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,728,969 to Otani *et al.* ("Otani") in view of U.S. Patent No.

5,997,668 to Aubert *et al.* ("Aubert"), U.S. Patent No. 5,552,000 to Shepherd ("Shepherd"), French Patent No. 465,082 to Tarnowski ("Tarnowski"), French Patent No. 349,635 to Girard ("Girard"), and German Patent No. 100,522 to Berges ("Berges").

7) ARGUMENT

A.1 INDEFINITENESS REJECTION OF CLAIMS 1-32 AND 34-44

Claims 1-32 and 34-44 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Appellants regard as the invention. Appellants submit that the indefiniteness rejection of claims 1-32 and 34-44 is improper and should be reversed because the scope of the claims is clear to a hypothetical person possessing the ordinary level of skill in the pertinent art.

Standard Of Patentability Under 35 U.S.C. § 112, Second Paragraph

As required by 35 U.S.C. § 112, second paragraph, the scope of the claims must be "clear to a hypothetical person possessing the ordinary level of skill in the pertinent art." M.P.E.P. § 2171. The scope of the claims must be "clear so that the public is informed of the boundaries of what constitutes infringement of the patent." M.P.E.P. § 2173. The definiteness of the claim language is analyzed in light of, *inter alia*, "the content of the particular application disclosure" and "[t]he claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made." M.P.E.P. § 2173.02.

In view of this standard and the arguments set forth below, Appellants respectfully submit that the pending claims are not indefinite.

A.1A Claims 1-6, 10-23, 28-32, and 34-44

The Examiner states that the claims can not be understood because "with 99% of everything specified, the scope of 'comprising' makes no sense whatever. It is inconsistent with a correct recitation of 99% of the ingredients. Thus it is not clear whether the amounts are not actually required or if the claims scope is actually intended to be 'consisting essentially of' or 'consisting of.'" Office Action of May 21, 2004, p. 4. However, the Examiner has provided no support for the assertion that composition claims that recite a large percentage of their ingredients are restricted to using the transitional phrases "consisting essentially of" or "consisting of." The Examiner's argument appears to suggest that if a total of 100% of the ingredients of a chemical composition are recited, then a claim directed to that chemical composition must use the transitional phrase "consisting essentially of" or "consisting of." Appellants note that many of the pending claims, such as independent claims 1, 15, and 40 and many of the dependent claims, do not include a recitation of 99% of the ingredients. As such, it is unclear why the Examiner's indefiniteness rejection applies to each of claims 1-32 and 34-44.

Appellants also note that the claims mentioned by the Examiner as specific examples (claims 23, 43, and 44) are dependent claims, which by definition further limit the claims from which they depend. While these dependent claims recite that at least 99 wt% of the melt-pourable explosive composition comprises a combination of one or more organic binders and one or more inorganic oxidizers, the melt-pourable explosive composition may further include additional ingredients, such as a processing aid. As such, it is improper for the Examiner to require that the claims recite the transitional phrase "consisting essentially of" or "consisting of."

Contrary to the Examiner's assertion, the use of the term "comprising" is not restricted to situations where unspecified ingredients are present in major amounts. This is evidenced by the discussion in the M.P.E.P. of the term "comprising," which states that the term leaves "the claim open for the inclusion of unspecified ingredients even in major amounts." M.P.E.P. § 2111.03 (emphasis added). The use of the word "even" in this definition implies that "comprising" is also properly used in claims that include unspecified ingredients in minor amounts.

The Examiner states that this point is further illuminated in claim 23. Office Action of May 21, 2004, p. 4. However, Appellants respectfully submit that the Examiner appears to have adopted an erroneous reading of claim 23. Claim 23 depends from claim 15 and, as such, further limits claim 15. Claim 23 recites that one or more of the organic binders recited in claim 15 comprise at least one heterocyclic compound. In other words, claim 23 further limits the one or more organic binders of claim 15 to be at least one heterocyclic mononitro aromatic compound or heterocyclic dinitro aromatic compound.

Appellants respectfully submit that claims 1-32 and 34-44 are definite because the specification clearly discloses that the melt-pourable explosive composition includes 30 weight percent to 70 weight percent of one or more organic binders selected from the group consisting of mononitro aromatics and dinitro aromatics. See, for example, paragraphs [0010] and [0019]-[0025]. The melt-pourable explosive composition also includes 30 weight percent to 70 weight percent of one or more oxidizers, such as one or more inorganic oxidizers. See for example, paragraphs [0009], [0030], and [0031]. In combination, the organic binder and the oxidizer comprise at least 95 weight percent of the melt-pourable explosive composition. See, for example, paragraph [0010]. In light of this disclosure of the as-filed specification, one of

ordinary skill in the art would understand the scope of the rejected claims.

A.1B Claims 7-9 and 24-27

The Examiner also states that since N-methyl-nitroaniline is recited as a processing aid, the claims are indefinite because it is unclear whether the N-methyl-nitroaniline is a processing aid or an organic binder. Office Action of May 21, 2004, p. 5. While nitroaniline compounds may be used as the organic binder or as the processing aid, this does not render the claims indefinite because the specification clearly describes the organic binders and the processing aids such that one of ordinary skill in the art would be apprised of the scope of the claims. See, for example, paragraphs [0014] and [0026]-[0029]. In light of the disclosure of the as-filed specification, one of ordinary skill in the art would understand the scope of the rejected claims.

Since the scope of claims 1-32 and 34-44 is clear to one of ordinary skill in the art, Appellants respectfully submit that the indefiniteness rejection is improper and should be reversed.

A.2 OBVIOUSNESS REJECTION OF CLAIMS 1-32 AND 34-44 OVER OTANI IN VIEW OF AUBERT, SHEPHERD, TARNOWSKI, GIRARD, AND BERGES

In the Office Action of May 21, 2004, the Examiner rejected claims 1-32 and 34-44 as being obvious over Otani in view of Aubert, Shepherd, Tarnowski, Girard, and Berges. Appellants submit that the obviousness rejection of the claims is improper and should be reversed because the cited references do not teach or suggest all of the claim limitations and do not provide a motivation to combine to produce the claimed invention.

Standard Of Patentability Under 35 U.S.C. § 103(a)

The rejection of claims under 35 U.S.C. § 103(a) requires that the Office establish a *prima facie* case of obviousness. M.P.E.P. § 2142. M.P.E.P. 706.02(j) sets forth the standard for an obviousness rejection:

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

To provide a motivation or suggestion to combine, the prior art or the knowledge of a person of ordinary skill in the art must "suggest the desirability of the combination" or provide "an objective reason to combine the teachings of the references." M.P.E.P. § 2143.01.

In view of these standards and the arguments set forth below, Appellants respectfully submit that the Office has not established a *prima facie* case of obviousness under 35 U.S.C. § 103(a).

A.2A Claims 1-32 and 34-44

Independent claim 1 recites a melt-pourable explosive composition that comprises 30 wt% to 70 wt% of one or more organic binders and 30 wt% to 70 wt% of one or more oxidizers. The organic binders are selected from the group consisting of mononitro aromatics and dinitro aromatics. The organic binders collectively exhibit a total energy of detonation lower than trinitrotoluene and collectively have a total melting point in a range of 80°C to 115°C. The

melt-pourable explosive composition is pourable at a temperature in a range of 80°C to 115°C. At least 95 weight percent of the melt-pourable explosive composition comprises a combination of one or more organic binders and one or more oxidizers.

Independent claim 15 recites a melt-pourable explosive composition that comprises 30 wt% to 70 wt% of one or more organic binders and 30 wt% to 70 wt% of one or more inorganic oxidizers. The organic binders are selected from the group consisting of mononitro aromatics and dinitro aromatics. The organic binders collectively exhibit a total energy detonation lower than trinitrotoluene and collectively have a total melting point in a range of 80°C to 115°C. The melt-pourable explosive composition is pourable at a temperature in a range of 80°C to 115°C. At least 95 weight percent of the melt-pourable explosive composition comprises a combination of one or more organic binders and one or more inorganic oxidizers.

Independent claim 40 recites a melt-pourable explosive composition that comprises 30 wt% to 70 wt% of one or more organic binders and 30 wt% to 70 wt% of one or more inorganic oxidizers. The organic binders are selected from the group consisting of mononitro aromatics and dinitro aromatics. The organic binders collectively exhibit a total energy detonation lower than trinitrotoluene and collectively have a total melting point in a range of 80°C to 115°C. The melt-pourable explosive composition is melt-pourable at a temperature in a range of 80°C to 115°C, undergoes an onset of thermal decomposition at a temperature that is at least 55.5°C higher than the temperature at which the melt-pourable explosive composition becomes pourable, and exhibits a card gap value of less than 121, a dent depth in a range of 0.754 cm to 0.922 cm, and a total energy of detonation of 7.1 kJ/cc to 8.7 kJ/cc. At least 95 weight percent of the melt-pourable explosive composition comprises a combination of one or more organic binders

and one or more inorganic oxidizers.

Each of independent claims 1, 15, and 40 recites the limitation that "the melt-pourable explosive composition is pourable at a temperature in a range of 80°C to 115°C." Each of independent claims 1, 15, and 40 also recites the limitation that "at least 95 weight percent of the melt-pourable explosive composition comprises a combination of the one or more organic binders and the one or more oxidizers" or the similar limitation that "at least 95 weight percent of the melt-pourable explosive composition comprises a combination of the one or more organic binders and the one or more inorganic oxidizers."

Otani teaches a granular explosive that includes from 3-50% by weight of an aromatic dinitro compound and from 50-97% by weight of porous prill ammonium nitrate. The dinitro compound is adsorbed into the ammonium nitrate. The granular explosive is formed by mixing the porous prill ammonium nitrate with the aromatic dinitro compound in a mixer.

Aubert teaches a method of casting 1,3,3-trinitroazetidine ("TNAZ") that includes adding a nitro-substituted aromatic amine to a melt including TNAZ. The nitro-substituted aromatic amine is a mono-, di-, or tri-nitro or -amino compound. The TNAZ is present in an amount ranging from 75-95% and the nitro-substituted aromatic amine is present in an amount ranging from 5-25% by weight.

Shepherd teaches an explosive composition that includes a non-aqueous emulsion of a nitrosolution of an organic self-explosive in a surfactant-in-fuel dispersion. The explosive composition is formed by dissolving the organic self-explosive in a nitrosolvent to form a supersaturated nitrosolution. The organic self-explosive is present in the explosive composition from above 50-97% by weight and the nitrosolvent is present from 5-15%. The explosive

composition includes a nitramine and, optionally, a nitroaromatic compound.

Tarnowski teaches an explosive powder that includes metallic aluminum, an aromatic nitro-hydrocarbon, and ammonium perchlorate. The explosive powders include 12-15% trinitrobenzene, 40-75% ammonium perchlorate, and 30% potassium nitrate.

Girard teaches an explosive powder having a nitrated or azo derivative in combination with an alkaline chlorate, alkaline perchlorate, alkaline nitrate, or ammonium nitrate.

The cited references do not teach or suggest all of the limitations of each of claims 1, 15, and 40 because the cited references do not teach or suggest that "the melt-pourable explosive composition is pourable at a temperature in a range of 80°C to 115°C." The Examiner states that Otani teaches "the basic invention of melt-cast explosives with dinitro aromatics, oxidizer, etc." Office Action of May 21, 2004, p. 2. The Examiner then relies on Aubert, Shepherd, Tarnowski, Girard, and Berges as teaching that "variation of the various notoriously well known additives, amounts and so forth would have been obvious" and that [i]t is well settled that optimizing a result effective variable is well within the expected ability of a person of ordinary skill in the subject art." *Id.* at p. 2-3. As such, the Examiner appears to rely on Otani as teaching this limitation but does not rely on any of the remaining cited references to teach or suggest this limitation.

In contrast to the Examiner's assertion, Otani teaches that its granular explosive is produced by adsorbing the aromatic dinitro compound into the ammonium nitrate and, as such, does not teach a melt-pour explosive. Therefore, Otani does not teach or suggest that "the melt-pourable explosive composition is pourable at a temperature in a range of 80°C to 115°C," as recited in each of claims 1, 15, and 40. In addition, none of the remaining cited references

teaches or suggests this limitation and, therefore, does not cure this deficiency in Otani.

The cited references also do not teach or suggest the limitation that "at least 95 weight percent of the melt-pourable explosive composition comprises a combination of the one or more organic binders and the one or more oxidizers" or the similar limitation of "at least 95 weight percent of the melt-pourable explosive composition comprises a combination of the one or more organic binders and the one or more inorganic oxidizers" as recited in claims 1, 15, or 40. None of the cited references teaches that at least 95 weight percent of the explosive composition includes organic binders and oxidizers, such as inorganic oxidizers. Furthermore, the Examiner has not identified a specific portion of any of the cited references to support his assertion that this limitation is taught or suggested by the cited references.

The cited references also do not provide a motivation to combine to produce the claimed invention. The Examiner relies on Otani as teaching "the basic invention of melt-cast explosives with dinitro aromatics, oxidizer, etc." Office Action of May 21, 2004, p. 2-3. The Examiner relies on Aubert, Shepherd, Tarnowski, Girard, and Berges as teaching that "variation of the various notoriously well known additives, amounts and so forth would have been obvious" and that "[i]t is well settled that optimizing a result effective variable is well within the expected ability of a person of ordinary skill in the subject art." *Id.* However, this statement by the Examiner is conclusory and is not an objective reason that supports combining the cited references to produce the claimed invention.

As discussed above, Otani teaches that its granular explosive is formed by adsorbing the aromatic dinitro compound into the ammonium nitrate. Therefore, Otani does not teach or suggest a melt-pour explosive. In addition, nothing in Otani suggests the desirability of

formulating its granular explosive to be a melt-pour explosive. As such, the Examiner's stated motivation to combine Otani with the remaining cited references to produce the claimed invention is improper.

In addition, one of ordinary skill in the art would not be motivated to combine Aubert, Shepherd, Tarnowski, Girard, and Berges with Otani because many of the cited references do not teach or suggest forming a melt-pour explosive. Shepherd, Tarnowski, Otani, and Berges do not suggest preparing their respective explosive compositions by melt-pour processes. As such, these cited references would not motivate one of ordinary skill in the art to combine with Aubert to produce the claimed invention. Out of the cited references, Aubert teaches a melt-pour explosive. However, the melt-pour explosive in Aubert includes from 5-25% by weight of the nitro-substituted aromatic amine and from 75-95% by weight TNAZ and there is no suggestion in Aubert to adjust the amounts of these components. Furthermore, nothing in Aubert provides a motivation for using a similar formulation in a granular explosive, such as the granular explosive in Otani.

Furthermore, even if the cited references were combined, the claimed invention would not be produced because the limitation of "wherein at least 95 weight percent of the melt-pourable explosive composition comprises a combination of the one or more organic binders and the one or more inorganic oxidizers" would not be taught or suggested, as discussed above.

Since the cited references do not teach or suggest all of the limitations of each of claims 1, 15, and 40 and do not provide a motivation to combine to produce the claimed invention, Appellants respectfully submit that the obviousness rejection of each of these claims is improper

and should be reversed.

Claims 2-14 and 43 are allowable, *inter alia*, as depending from an allowable base claim, namely claim 1.

Claims 16-32 and 34-39 are allowable, *inter alia*, as depending from an allowable base claim, namely claim 15.

Claims 41, 42, and 44 are allowable, *inter alia*, as depending from an allowable base claim, namely claim 40.

8) CLAIMS APPENDIX

A copy of claims 1-32 and 34-44 is appended hereto as Appendix A.

CONCLUSION

Appellants respectfully submit that claims 1-32 and 34-44 are allowable over the cited references of record and respectfully request that the rejections of claims 1-32 and 34-44 under 35 U.S.C. § 112, second paragraph and 35 U.S.C. § 103(a) be reversed.

Respectfully submitted,

Katherine A. Hamer

Katherine A. Hamer
Registration No. 47,628
Attorney for Appellants
TRASKBRITT P.C.
P. O. Box 2550
Salt Lake City, Utah 84110-2550
Telephone: (801) 532-1922

Date: February 24, 2005
KAH/llb

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APPENDIX A

Claims 1-32 and 34-44

U.S. Patent Application No. 09/893,337

Filed June 27, 2001

1. A melt-pourable explosive composition comprising:

30 weight percent to 70 weight percent of one or more organic binders selected from the group consisting of mononitro aromatics and dinitro aromatics, the one or more organic binders collectively exhibiting a total energy of detonation lower than trinitrotoluene and collectively having a total melting point in a range of 80°C to 115°C; and

30 weight percent to 70 weight percent of one or more oxidizers,

wherein the melt-pourable explosive composition is pourable at a temperature in a range of 80°C to 115°C, and

wherein at least 95 weight percent of the melt-pourable explosive composition comprises a combination of the one or more organic binders and the one or more oxidizers.

2. The melt-pourable explosive composition of claim 1, wherein the one or more organic binders comprise at least one mononitro aromatic compound and at least one dinitro aromatic compound.

3. The melt-pourable explosive composition of claim 1, wherein the mononitro aromatics each comprise one nitrocarbon moiety and wherein the dinitro aromatics each comprise two nitrocarbon moieties.

4. The melt-pourable explosive composition of claim 1, wherein the one or more organic binders comprise at least one member selected from the group consisting of mononitro-substituted and dinitro-substituted phenyl alkyl ethers.

5. The melt-pourable explosive composition of claim 1, wherein the one or more binders comprise at least one member selected from the group consisting of 2,4-dinitroanisole, 2,4-dinitrophenetole, and 4-methoxy-2-nitrophenol.

6. The melt-pourable explosive composition of claim 1, wherein the one or more binders comprise 2,4-dinitroanisole.

7. The melt-pourable explosive composition of claim 1, wherein the one or more binders comprise an N-alkyl-nitroaniline processing aid.

8. The melt-pourable explosive composition of claim 1, wherein the one or more binders comprise N-methyl-nitroaniline as a processing aid.

9. The melt-pourable explosive composition of claim 1, wherein the one or more binders comprise at least one processing aid selected from the group consisting of N-alkyl nitroaniline and N-aryl-nitroaniline, the at least one processing aid accounting for not more than 1 weight percent of the melt-pourable explosive composition.

10. The melt-pourable explosive composition of claim 1, wherein the melt-pourable explosive composition undergoes an onset of thermal decomposition at a temperature that is at least 55.5°C higher than the temperature at which the melt-pourable explosive composition

becomes pourable.

11. The melt-pourable explosive composition of claim 1, wherein the melt-pourable explosive composition exhibits a card gap value of less than 121.

12. The melt-pourable explosive composition of claim 1, wherein the melt-pourable explosive composition exhibits a card gap value of less than 101.

13. The melt-pourable explosive composition of claim 1, wherein the melt-pourable explosive composition exhibits a dent depth in a range of 0.754 cm to 0.922 cm.

14. The melt-pourable explosive composition of claim 1, wherein the melt-pourable explosive composition has a total energy of detonation of 7.1 kJ/cc to 8.7 kJ/cc.

15. A melt-pourable explosive composition comprising:

30 weight percent to 70 weight percent of one or more organic binders selected from the group consisting of mononitro aromatics and dinitro aromatics, the one or more organic binders collectively exhibiting a total energy detonation lower than trinitrotoluene and collectively having a total melting point in a range of 80°C to 115°C; and

30 weight percent to 70 weight percent of one or more inorganic oxidizers,

wherein the melt-pourable explosive composition is pourable at a temperature in a range of 80°C to 115°C, and

wherein at least 95 weight percent of the melt-pourable explosive composition comprises a combination of the one or more organic binders and the one or more inorganic oxidizers.

16. The melt-pourable explosive composition of claim 15, wherein the one or more organic binders comprise at least one mononitro aromatic compound and at least one dinitro aromatic compound.

17. The melt-pourable explosive composition of claim 15, wherein the mononitro aromatics each comprise one nitrocarbon moiety and wherein the dinitro aromatics each comprise two nitrocarbon moieties.

18. The melt-pourable explosive composition of claim 15, wherein the one or more organic binders comprise at least one member selected from the group consisting of nitrotoluenes, dinitrotoluenes, and dinitronaphthalenes.

19. The melt-pourable explosive composition of claim 15, wherein the one or more organic compounds comprise at least one member selected from the group consisting of nitrophenols, dinitrophenols, mononitroanilines, and dinitroanilines.

20. The melt-pourable explosive composition of claim 15, wherein the one or more organic binders comprise at least one member selected from the group consisting of mononitro-substituted and dinitro-substituted phenyl alkyl ethers.

21. The melt-pourable explosive composition of claim 15, wherein the one or more binders comprise at least one member selected from the group consisting of 2,4-dinitroanisole, 2,4-dinitrophenetole, and 4-methoxy-2-nitrophenol.

22. The melt-pourable explosive composition of claim 15, wherein the one or more binders comprise 2,4-dinitroanisole.

23. The melt-pourable explosive composition of claim 15, wherein the one or more organic binders comprise at least one heterocyclic compound.

24. The melt-pourable explosive composition of claim 15, wherein the one or more binders comprise an N-alkyl-nitroaniline processing aid.

25. The melt-pourable explosive composition of claim 15, wherein the one or more binders comprise N-methyl-nitroaniline as a processing aid.

26. The melt-pourable explosive composition of claim 15, wherein the one or more binders comprise an N-aryl-nitroaniline processing aid.

27. The melt-pourable explosive composition of claim 15, wherein the one or more binders comprise at least one processing aid selected from the group consisting of N-alkyl

nitroaniline and N-aryl-nitroaniline, the at least one processing aid accounting for not more than 1 weight percent of the melt-pourable explosive composition.

28. The melt-pourable explosive composition of claim 15, wherein the one or more inorganic oxidizers comprise at least one member selected from the group consisting of perchlorates and nitrates.

29. The melt-pourable explosive composition of claim 15, wherein the one or more inorganic oxidizers comprise at least one perchlorate selected from the group consisting of ammonium perchlorate, sodium perchlorate, and potassium perchlorate.

30. The melt-pourable explosive composition of claim 15, wherein the one or more inorganic oxidizers comprise at least one nitrate selected from the group consisting of ammonium nitrate, sodium nitrate, strontium nitrate, and potassium nitrate.

31. The melt-pourable explosive composition of claim 15, wherein the one or more inorganic oxidizers have an average particle size of 3 microns to 60 microns.

32. The melt-pourable explosive composition of claim 15, wherein the one or more inorganic oxidizers have an average particle size of 5 microns to 20 microns.

34. The melt-pourable explosive composition of claim 15, wherein at least 99 weight

percent of the melt-pourable explosive composition comprises a combination of the one or more organic binders and the one or more inorganic oxidizers.

35. The melt-pourable explosive composition of claim 15, wherein the melt-pourable explosive composition undergoes an onset of thermal decomposition at a temperature that is at least 55.5°C higher than the temperature at which the melt-pourable explosive composition becomes pourable.

36. The melt-pourable explosive composition of claim 15, wherein the melt-pourable explosive composition exhibits a card gap value of less than 121.

37. The melt-pourable explosive composition of claim 15, wherein the melt-pourable explosive composition exhibits a card gap value of less than 101.

38. The melt-pourable explosive composition of claim 15, wherein the melt-pourable explosive composition exhibits a dent depth in a range of 0.754 cm to 0.922 cm.

39. The melt-pourable explosive composition of claim 15, wherein the melt-pourable explosive composition has a total energy of detonation of 7.1 kJ/cc to 8.7 kJ/cc.

40. A melt-pourable explosive composition comprising:

30 weight percent to 70 weight percent of one or more organic binders selected from the group consisting of mononitro aromatics and dinitro aromatics, the one or more organic binders collectively exhibiting a total energy detonation lower than trinitrotoluene and collectively having a total melting point in a range of 80°C to 115°C; and

30 weight percent to 70 weight percent of one or more inorganic oxidizers,

wherein the melt-pourable explosive composition is melt-pourable at a temperature in a range of 80°C to 115°C, undergoes an onset of thermal decomposition at a temperature that is at least 55.5°C higher than the temperature at which the melt-pourable explosive composition becomes pourable and exhibits a card gap value of less than 121, a dent depth in a range of 0.754 cm to 0.922 cm, and a total energy of detonation of 7.1 kJ/cc to 8.7 kJ/cc, and

wherein at least 95 weight percent of the melt-pourable explosive composition comprises a combination of the one or more organic binders and the one or more inorganic oxidizers.

41. The melt-pourable explosive composition of claim 40, wherein the card gap value exhibited by the melt-pourable explosive composition is less than 101.

42. The melt-pourable explosive composition of claim 40, wherein the card gap value exhibited by the melt-pourable explosive composition is less than 81.

43. The melt-pourable explosive composition of claim 1, wherein at least 99 weight

percent of the melt-pourable explosive composition comprises a combination of the one or more organic binders and the one or more inorganic oxidizers.

44. The melt-pourable explosive composition of claim 41, wherein at least 99 weight percent of the melt-pourable explosive composition comprises a combination of the one or more organic binders and the one or more inorganic oxidizers.